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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,147	10/19/2001	Paul F. Langille	CRESC-011XX	7867

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Ansel M. Schwartz
Attorney at Law
201 n. Craig Street
Suite 304
Pittsburgh, PA 75222

EXAMINER	
AHMED, SALMAN	

ART UNIT	PAPER NUMBER
2666	

DATE MAILED: 11/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/033,147	LANGILLE ET AL.	
	Examiner	Art Unit	
	Salman Ahmed	2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,7-9,14-16,18 and 20-22* is/are rejected.

7)☒ Claim(s) *4,6,10-13,17,19 and 23-26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/23/02 ,9/9/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see pages 12-17 of the Remarks section, filed 10/07/2005, with respect to the rejection of claims 1 and 14 under 35 U.S.C. 102(e) have been fully considered but they are not persuasive. Applicant argues that the Moir reference does not disclose a virtual interface subsystem operative to couple the virtual router subsystem to the physical interfaces, the virtual interface subsystem including a plurality of virtual interfaces, the virtual interfaces being organized into link sets, each link set during operative to associate a generic interface identifier of a given virtual router with a corresponding physical interface coupled to a network link connecting the network device to another network device serving a same VPRN. However, examiner respectfully disagrees with this assertion. The present claim language is broad and in view of the broadest reasonable interpretation of this language, as indicated in the previous office action, a virtual interface subsystem (page 2 section 0028, network traffic manager) operative to couple the virtual router subsystem to the physical interfaces (page 4 section 0047 and figure 7, virtual interface being a logical description of a physical interface), the virtual interface subsystem including a plurality of virtual interfaces (page 4 section 0047 and figure 7, virtual interfaces), the virtual interfaces being organized into link sets (page 2 section 0030 and figure 7, virtual interfaces in case of ATM having multiple VCCs), each link set during operative to associate a generic interface identifier of a given virtual router with a corresponding physical interface (page 4 section 0048, figure 2 and figure 7, each virtual interface includes configuration to set the type of underlying physical interface (e.g., Ethernet, VDSL, ADSL, etc.), assign a driver instance (i.e., the realization of the physical layer), assign the label space of the physical

layer that the virtual interface can use) coupled to a network link (page 2 section 0030 and figure 7, VCC) connecting the network device to another network device (page 4 section 48) specifying how to map a packet to and from the external network) serving a same VPRN (page 4 section 48, with each virtual interface being created to support a specific network topology and page 2 section 0030 and figure 7, ATM with multiple VCCs).

2. Applicant's arguments, see pages 17-21 of the Remarks section, filed 10/07/2005, with respect to the rejection of claims 2 and 15 under 35 U.S.C. 103(a) have been fully considered but they are not persuasive. Applicant argues that the Li reference is an architecture whose entire focus revolves around the World Wide Web and the Internet. in contrast, Moir specifically teaches a specifically teaches a device whose architecture is limited to what is occurring inside that device. Taking the teachings regarding the Internet and the components distributed throughout it is completely inapplicable to apply to a specific internal architecture of a switch. lt is black letter patent law that teachings cannot be taken out of the context in which they are found. The teachings that the Examiner is relying upon from Li in regard to how virtual channels can be mapped into physical channels is only explained and enabled in regard to how it is applied to the worldwide web and specifically the system and method taught by Li. This context has nothing to do with the specific internal teachings of a switch as taught by Moir. These different contexts in which the respective teachings are found cannot be ignored. The Examiner is using hindsight to arrive at applicants' invention of Claim 1. The Examiner is using the Limitations of Claim 1 as a road map to find the different limitations in different references, and having found them, concluding that applicants ' invention of Claim 1 is arrived at. Hindsight is not patent law. Furthermore, Applicant argues there must be some teaching or suggestion in the

references themselves to combine the teachings the Examiner relies upon, and here, there is none. As explained above, the different contexts preclude the possibility of such a teaching. However, examiner respectfully disagrees with this assertion. The present claim language is broad and in view of the broadest reasonable interpretation of this language, as was indicated in the previous office action, claims 2 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moir in view of Li. To further clarify the rejection, and in response to Applicant's argument above, Moir suggests (page 1 section 0003) that in today's highly networked environment, it has become desirable to offer varying levels of service (e.g., Quality-of-Service (QoS)) to various network entities. For example, where multiple network devices (e.g., web stations, personal computers, set-top boxes, etc.) are coupled to a network via a network connection device (e.g., a router, switch or bridge), the ability to provide differentiated QoS to such network devices may be motivated by a number of factors, including a network operator's commercial objectives. To further clarify the rejection, and in response to Applicant's argument above, Li teaches (column 1 lines 25-46) that the factors contributing to Electronic Proximity include the server capacity of an information source, the bandwidth of the backbone network, the bandwidth of the access network, the loads of the servers and networks, and the placement and access mechanisms of the servers. With emerging high-speed access mechanisms, for example, cable modems, IDSN, and ADSL modems, this dominant access mode is increasingly being supplanted. The information hierarchy and differing pipe widths inside the World Wide Web consequently are increasingly being exposed, since users see more access bandwidth. As demand for access increases, in addition to adding server and backbone capacity to take advantage of new high-speed access pipes, it is now also possible to exploit new

techniques of server placement and access mechanisms, to improve overall user experience on the World Wide Web. As such Examiner respectfully disagrees Applicant's argument that there are no teaching or suggestion in the references themselves to combine the teachings. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art at the time the invention was made. See In re Keller 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

3. Applicant's arguments, see page 21 of the Remarks section, filed 10/07/2005, with respect to the rejection of claims 3 and 16 under 35 U.S.C. 103(a) have been fully considered but they are not persuasive. Applicant argues that Chen in relevant part does not add anything to the teachings of Moir to arrive at Claims 2 and 15, let alone Claims 1 and 14, from which Claims 3 and 16, respectively, depend. However, examiner respectfully disagrees with this assertion. Chen teaches of using automatic protection switching scheme in his teachings in column 9 lines 27-31 and figure 2d.

Applicant's arguments, see page 21 of the Remarks section, filed 10/07/2005, with respect to the rejection of claims 5, 7-9, 18 and 20-22 under 35 U.S.C. 103(a) have been fully considered but they are not persuasive. Applicant argues that Cisco, in relevant part, does not add anything to the teachings of Moir to arrive at Claims 1 and 14, let alone Claims 2 and 15, from which Claims 5, 7-9; 18 and 20-22, respectively, depend. However, examiner respectfully disagrees with this assertion. Cisco teaches the concept of inner labels and outer labels.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Moir (US PAT PUB US2002/0118644).

A method of operating a network device having a plurality of physical interfaces coupled to corresponding physical network links connecting the network device to other network devices and routing protocol messages transmitted by a given virtual router at a given interface, obtaining physical interface information from the linked set of virtual interfaces associated with the generic interface identifier of the interface, the physical interface information identifying a corresponding physical interface of the network device via which the routing protocol messages are to be transmitted, and transmitting the routing protocol messages on the network link coupled to the identified physical interface is anticipated by Moir. In page 2 section 0028, Moir states figure 1 as a block diagram illustrating, at a high level, the operation of a network traffic manager, in the exemplary form of a virtual machine. Specifically, FIG. 1 illustrates the virtual machine has been hosted on a network connection (or data communications) device (e.g., a bridge, switch or router). In page 4 section 0047 and figure 7 Moir states virtual interface being a logical description of a physical interface, which hides the details of any underlying multiplexing such as, an ATM physical layer may be mapped as illustrated in FIG. 7 and finally Moir states in

page 4 section 0048 (also can be seen in figure 2 and figure 7) that each virtual interface includes configuration to set the type of underlying physical interface (e.g., Ethernet, VDSL, ADSL, etc.), assign a driver instance (i.e., the realization of the physical layer), assign the label space of the physical layer that the virtual interface can use.

A plurality of virtual routers, with each virtual router being associated with a corresponding different virtual private routed network (VPRN) and employing generic interface identifiers to identify associated interfaces at which routing traffic for the associated VPRN is received and transmitted, and maintaining a plurality of virtual interfaces, the virtual interfaces being organized into linked sets each operative to associate a generic identifier used by a given virtual router with a corresponding physical interface to another network device serving the same VPRN is anticipated by (page 2 section 0027) a method and system to implement policy-based network traffic management comprising (page 2 section 0030 and figure 7) of virtual interfaces in case of ATM having multiple VCCs and (page 4 section 48) each virtual interface being created to support a specific network topology, and specifying how to map a packet to and from the external network.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moir (US PAT PUB 20020118644) as applied to claims 1 and 14 above, and further in view of Li (US PAT 6049829).

Moir states (page 4 section 0047 and figure 7) how virtual interface being a logical description of a physical interface, hides the details of any underlying multiplexing such as, an ATM physical layer and may be mapped as illustrated in FIG. 7.

Moir does not mention in details how virtual channels are mapped into physical channels.

Li states how virtual channels can be mapped into physical channels. In column 4 lines 1-5 Li states that to coordinate the setup of link, physical channel and related pathways to information client, the client establishes a channel map for the association of virtual channels, physical channels, and content type in the virtual channels. In column 4 lines 7-14 he further states Virtual Channel ID is the identifier of a virtual channel, and may be used as one value of the tag data in expanded HTML. RF Channel Number identifies a 6 MHz-wide analog bandwidth allocation that a digital bit stream is modulated on. Stream ID identifies a given partition of a digital bit stream, and is usually used as part of the header of packets. In this illustrative embodiment, a physical channel is effectively identified by a combination of RF Channel Number (FDM) and Stream ID (SM).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Moir's teaching in include Li's teaching of how virtual channels can be linked to physical channels. The motivation is that, using some kind of identifier associated to a virtual channel makes it simpler for virtual channel multiplexing into physical channels. Such identification and mapping makes routing configuration and maintenance more manageable.

5. Claims 3 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moir (US PAT PUB 20020118644) as applied to claims 2 and 15 above, and further in view of Chen et al. (US PAT 6501758), hereinafter referred to as Chen.

Moir states (page 4 section 0047 and figure 7) how virtual interface being a logical description of a physical interface, hides the details of any underlying multiplexing such as, an ATM physical layer and may be mapped as illustrated in FIG. 7.

Moir does not disclose any kind of automatic protection switching or aps scheme in his teachings.

Chen teaches of using automatic protection switching scheme in his teachings in column 9 lines 27-31 and figure 2d. He states how ATM layers survivability for traffic carried on ATM channels can be implemented using an ATM layer protection scheme, such as virtual path 1+1 automatic protection switching (VP APS).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Moir's teaching to incorporate Chen's automatic protection switching scheme. The motivation is that automatic protection switching is necessary for implementing fault-tolerant network.

6. Claims 5, 7-9, 18 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moir (US PAT PUB 20020118644) as applied to claims 1, 2, 14 and 15 above, and further in view of document "Cisco MPLS Controller Software Configuration Guide", Release 9.3.0 , April 2000.

Moir discloses (page 11 section 128) that separate circuits may be static channels using permanent virtual circuits or dynamic channels utilizing some combination of signaling (e.g., label distribution or call set-up).

Moir does not talk about how labels specifically inner labels and outer labels are used to route calls via virtual channels.

"Cisco MPLS Controller Software Configuration Guide", Release 9.3.0, April 2000 pages 2.27-2.29, teaches of how labels are used to route traffic through the network. It states in the section under the heading "Forwarding in a Cisco Virtual Private Network Service" how packets arrive at the origination router from a particular customer VPN with a generic identifier ip address. Origination router looks up its VPN forwarding table, gets two different labels to put on the packet. The inner label, which has a certain value, is carried in a header encapsulated along with the rest of the IP packet. The inner label carries information specific to the virtual private network. The outer label, certain value, is an ordinary MPLS label that tells the rest of the network that the packet is to be delivered to destination router, with certain IP address. As such outer label can have multiple inner labels. The packet is sent on to the core of the network, which performs ordinary label switching, while forwarding the packet on towards destination router. When destination router receives the packet, it ignores the outer label, because it corresponds to destination router's own IP address. It then looks up the inner label, in a table (Figure 2-25). It then looks at the IP address on the packet, and finds where the packet is destined.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Moir's teaching to incorporate the detailed scheme of routing packets using inner labels and outer labels. The motivation is that label switching using inner labels and outer

labels allows routers to make forwarding decisions based on the contents of a simple label, rather than by performing a complex lookup based on a destination address like ip address.

Allowable Subject Matter

7. Claims 4, 6, 10-13, 17, 19 and 23-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. Applicant's amendment necessitated the rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Salman Ahmed whose telephone number is (571)272-8307. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571)272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Salman Ahmed
Examiner
Art Unit 2666

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